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PMMA membrane with a laser milling machine. The two lateral portions 7 of the membrane astride the median optic region 2 are shaped to define at least two flaps 8 which are permanently bent obliquely backward in relation to the median region in order to nest intimately into the corner 9 of the anterior chamber as illustrated in FIG. 4. Accordingly, the median portion and the lateral portion with their bent flaps 8 form a vault having a total sagittal length S of approximately 1 millimeter whereby the membrane 1 spans the anterior chamber 10 in a direction substantially parallel to the iris 11. It should be noted that the median portion and the lateral portions exclusive of the flaps may be slightly arcuate about the transversal length central axis XX' to a total sagittal length of approximately 0.5 millimeter. In which case, the height of the flaps H would be reduced to approximately 0.5 millimeter in order to obtain a total vault height or sagittal length S of approximately 1 millimeter. The curvature of the membrane and the bent of flaps are permanently imparted during the fabrication of the device.

Alternate embodiments of the device are illustrated in FIGS. 6-14. In each of these alternate embodiments, the membrane returns to its arcuate shape and backward projecting flaps 9. Each device fits within a circle having a diameter D of approximately 13 millimeters. Due to the flexibility of the membrane, this size can accommodate practically all eye sizes.

In the embodiment 13 of FIGS. 6-8, the surface of the membrane is reduced for maximum buoyancy.

In the embodiment 14 of FIGS. 9-11, the flaps have an increased thickness along their edges 15 to create a larger footprint against the wall of the eye. The collar regions 16 between each flap and the main body of the membrane is thinned down to about 20 microns in order to provide flexibility with a modicum amount of resiliency.

The embodiment 17 of FIGS. 12-14 is of a simplified shape that can provide an even larger optic zone.

While the preferred embodiments of the invention have been described, modifications can be made and other embodiments may be devised without departing from the spirit of the invention and the scope of the appended claims.

What is claimed is:

1. A single piece corrective device for installation in the anterior chamber of a phakic or pseudophakic eye which comprises:

a single thin, resiliently bendable membrane shaped and dimensioned to span the anterior chamber substantially parallel to the iris;

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said membrane having a substantially constant thickness in a range of approximately 10 to 100 microns;

said membrane comprising a corrective median portion, and at least two lateral portions astride said median portion wherein said corrective portion includes a thin lens;

wherein said thin lens comprises a discontinuous optic zone having a plurality of concentric optic rings.

2. The device of claim 1, wherein said thin lens further includes a central continuous optic zone.

3. The device of claim 2, wherein said median portion and lateral portions form a vault having a sagittal length of approximately 1 millimeter.

4. The device of claim 1, wherein each of said lateral portions comprises at least one anchoring flap bent obliquely backward in relation to said median portion, and shaped and dimensioned to intimately nest into the corner of the anterior chamber.

5. The device of claim 1, wherein said membrane is made of flexible PMMA.

6. The device of claim 1, wherein said thin lens has correction powers in a range of approximately minus 15 diopters to plus 15 diopters.

7. A method for treating optical deficiency of a patient's eye which comprises:

installing, in the anterior chamber of said eye, a one-piece, single component corrective device, said device comprising:

a thin, resiliently bendable membrane shaped and dimensioned to arcuately span the anterior chamber substantially parallel to the iris;

said membrane having a substantially constant thickness in a range of approximately 10 to 100 microns, and comprising a corrective median portion, and at least two lateral portions astride said median portion wherein said corrective portion includes a thin lens having a discontinuous optic zone including a plurality of concentric optic rings.

8. The method of claim 7, wherein said step of installing further comprises making a corneal incision in said eye, of no more than 2.75 millimeters in length;

curling said membrane; and

inserting said membrane through said incision.

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